



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,164	02/14/2002	Shinya Adachi	34408	6919

116 7590 12/07/2006

PEARNE & GORDON LLP
1801 EAST 9TH STREET
SUITE 1200
CLEVELAND, OH 44114-3108

EXAMINER

KENNEDY, ADRIAN L

ART UNIT PAPER NUMBER

2121

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,164

Applicant(s)

ADACHI ET AL.

Examiner

Adrian L. Kennedy

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Examiner's Detailed Office Action

1. This Office Action is responsive to application 10/075,164, filed **February 14, 2002**.
2. **Claims 1-13** have been examined.

Information Disclosure Statement

3. Applicant is respectfully reminded of the ongoing Duty to disclose 37 C.F.R. 1.56 all pertinent information and material pertaining to the patentability of applicant's claimed invention, by continuing to submit in a timely manner PTO-1449, Information Disclosure Statement (IDS) with the filing of applicant's application or thereafter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5-7 and 11-13 are rejected under 35 U.S.C. 102(e) as being anticipated by *Ito* (USPN 6,249,740).

Regarding claim 1:

Ito teaches

(Currently amended): A location information transmission method for reporting on-road location information (C 3, L 14-19) on a first digital map (C 3, L 29-34; “*navigation data stored in the data base and then transmit[s] the detailed navigation data to the navigation apparatus*”) by an information transmission system, comprising the steps of:

transmitting on-road location information by an information provider (C 3, L 14-19; The examiner takes the position that the “information provider” is disclosed as a navigation base apparatus), the on-road location information including:

a string of coordinates line information representing a road shape of a road section (C 19, L 50-57; C 9, 19-25; Fig. 11);

additional information including attribute information on said road section or nodes in said road section (C 9, L 19-25);

receiving said on-road location information (C 3, L 14-19; navigation apparatus of a moving apparatus) by a receiver having a second digital map (C 3, L 29-34; “*detailed navigation data [on] the navigation apparatus*”); and

performing shape matching to identify said road section on the second digital map of the receiver (C 3, L 29-34; “*detailed navigation data [on] the navigation apparatus*”) based on the string of coordinates line information and the additional information (C 19, L 66-67; C 20-1-12; Fig. 11; The examiner takes the position that shape matching is disclosed as comparing patterns).

Art Unit: 2121

Regarding claim 2:

Ito teaches

(Previously presented): A location information transmission method wherein a string of coordinates where coordinate data indicating the positions of the nodes (C 9, L 26-32; disclosed as intersection) and interpolation points (C 9, L 20-21; disclosed as nodes) included in said road section are arranged sequentially is used as said string of coordinate information (C 17; L 35-39; Fig. 7).

Regarding claim 3:

Ito teaches

(Previously presented): A location information transmission method, wherein an interpolation point that contributes less to shape matching is omitted from the interpolation points included in said road section (C 8, L 31-35).

Regarding claim 5:

Ito teaches

(Previously presented): A location information transmission method wherein said string of coordinate information comprises coordinate data of a member chosen from a group of nodes and interpolation points included in said road section, the coordinate data being represented using absolute coordinates and data of members of nodes and interpolation points excluding said chosen member, the data being represented using relative coordinates (C 23, L 26-33; Disclosed as geographical coordinates).

Art Unit: 2121

Regarding claim 6:

Ito teaches

(Previously presented): A location information transmission method wherein said additional information includes at least one information item chosen from a group consisting of road type code, road number, toll highway code, number of traffic lanes, regulation information, road width, number of connecting links to a crossing node, and connection angle of each connecting link to a crossing node (C 9, L 19-25; Fig. 25).

Regarding claim 7:

Ito teaches

(Previously presented): A location information transmission method wherein said additional information includes accuracy information relating to a digital map data used to generate the on-road location information (C 14, L 39-46; Accuracy information is disclosed by transmitting an outline map that is scaled down version of a map).

Regarding claim 11:

Ito teaches

Claim 11 (Currently amended): A location information transmission method wherein the on-road location information includes relative information indicating an on-road location in said road section (C 17, L 53-55, and L 59-62), the method further comprising a step of

Art Unit: 2121

performing identifying the on-road location in the road section using the relative information (C 20, L 4-11) by the receiver (C 27, L 28-32).

Regarding claim 12:

Ito teaches

(new): A transmission apparatus (C 1, L 9-17; *“navigation base apparatus provided at the navigation base”*) comprising:

a digital map (C 3, L 65-67; *“navigation data includes at least one of map data, road data, intersection data, area guidance data and voice guidance data”*);

an information generator that generates, based on the digital map, on-road location information (C 3, L 29-34; *“the navigation base apparatus is adapted to be able to extract detailed navigation data”*); The examiner takes the position that based on this teaching, the base apparatus is the information generator) including:

a string of coordinates line information representing a road shape of a road section and additional information including an information item selected from a group consisting of attribute information on said road section including a road location of said road section and detailed information on nodes in said road section (The examiner takes the position that the above claimed information including “strings of coordinates”, “road location”, and “detailed information on nodes” are all anticipated by navigation data as taught in Column 3, Lines 65-67 of the invention of Ito); and

a transmitter that transmits the on-road location information to a receiving apparatus having a digital map different from the digital map of the transmission apparatus.

Regarding claim 13:

Ito teaches

(new): A receiving apparatus (C 1, L 9-17; *“a navigation apparatus to be mounted on the vehicle”*) comprising:

a digital map (C 3, L 65-67; *“navigation data includes at least one of map data, road data, intersection data, area guidance data and voice guidance data”*);

a receiver that receives on-road location information including:

a string of coordinates line information representing a road shape of a road section and additional information including an information item selected from a group consisting of attribute information on said road section including a road location of said road section and detailed information on nodes in said road section (The examiner takes the position that the above claimed information including “strings of coordinates”, “road location”, and “detailed information on nodes” are all anticipated by navigation data as taught in Column 3, Lines 65-67 of the invention of Ito) from a transmission apparatus having a digital map different from the digital map of the receiving apparatus (The examiner takes the position that the map in the navigation apparatus (receiver end) does not have recommended route

data until that data is transmitted by the navigation base apparatus. This fact is clear in the statement that the navigation base apparatus is able to extract detailed navigation from its map whereas the navigation apparatus doesn't have this information until it is received from the navigation base apparatus);

an identifying unit that performs shape matching to identify said road section on the digital map of the receiving apparatus based on the on-road location information (C 19, L 42-46; "*map matching is carried out in the vehicle navigation apparatus*"; Fig. 11; Additionally, Ito teaches that an exemplary method of map matching is to match road patterns in Column 20, Lines 1-22).

6. Claims 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by *Saito et al.* (USPN 4,982,332).

Regarding claim 8:

Saito et al. teaches

(Previously presented): Method for thinning-out a plurality of points representing a road shape (C 1, L 38-44; "*road data generating method*"; The examiner takes the position that road data anticipates a plurality of point representing a road shape) by an information transmission system, comprising steps of:

providing a string of coordinates defining said plurality of points (C 1, L 47-49; *“point on the road in a map in numerical for and memorizing the as map data”* and C 1, L 49-56; *“detecting coordinates of the present position of the vehicle”*); determining whether the bearing deviation, d_n , (C 3, L 49-54; *“error of compass direction of the present position with respect to the nearest line, that is $|\theta_s - \theta_a|$ ”*) of an interpolation point, P_n , (C 3, L 39-45; *“co-ordinates $P_s (X_s, Y_s)$ of the present position”*) of said string of coordinates from a preceding interpolation point, P_{n-1} , (C 1, L 45-49; *“point $P_a (X_a, Y_a)$ on line which is nearest to the present position”*) said string of coordinates is smaller than a predetermined angle, α (C 3, L 49-54; *“smaller than θ_{th1} ”*); determining whether a distance, g_n , (C 3, L 45-49; *“distance la to a point point $P_a (X_a, Y_a)$ on line which is nearest to the present position”*) of the interpolation point, P_n , from the preceding interpolation point, P_{n-1} , is shorter than a predetermined length, β (C 3, L 49-54; *“CPU 6 judges as to whether the calculated distance la is equal to or smaller than a predetermined value lth_1 ”*); and omitting the interpolation point, P_n , (C 3, L 39-45; *“co-ordinates $P_s (X_s, Y_s)$ of the present position”*) from the string of coordinates (C 4, L 10-40; *“locus-data”*) if both $d_n < \alpha$ (C 3, L 55-59; *“ $|\theta_s - \theta_a| \leq \theta_{th1}$ ”*) and $g_n < \beta$ (C 3, L 65-68; *“ $la \leq lth_1$ ”*) as determined in the determining steps (The examiner takes the position that coordinate data in the invention of Saito et al. is registered as either “locus data” or “learning data” if the position deviation and the distance traveled is less than a

certain predetermined value it is registered as learning data, and if the coordinate is learning data it is omitted from the list of locus data (C 1, L 45- C 2, L 5)); transmitting the string of coordinates from which the interpolation point, P_n , is omitted from the information transmission system (The examiner takes the position that the string of coordinates from which the point P_n is omitted is equivalent to new road data, and that the registered road data is stored on a second storage medium (C 5, L 10-13; "*road data registered in the manner explained above is then stored into the second storage medium*") which it the first time the information is transmitted in the system, and then the information is transmitted to a first storage medium which contains all the new road data (C 5, L 18-22; "*one of the first storage medium 9 carrying new road data*")

Regarding claim 9:

Saito et al. teaches

(Previously presented): The method further comprising a step of incrementing the value of n by 1 and then repeating the steps of determining and the step of omitting.

The examiner takes the position that by stating that the invention detects a vehicle's current position and generates road data every time a certain distance is traveled in

Column 1, Lines 49-55, it is inherent that invention would increment the n th value by 1;

Regarding claim 10:

Saito et al. teaches

Art Unit: 2121

(Previously presented): The method of claim 8 wherein each of the points (C 3, L 39-45; “*co-ordinates P_s*”) is represented using relative information based on one of the plurality of points (C 3, L 39-45; “(*X_s*, *Y_s*)”).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Ito* (USPN 6,249,740) in view of *Saito et al.* (USPN 4,982,332).

Regarding claim 4:

Ito et al. teaches the method of claim 3, but fails to teach an interpolation point being omitted from said interpolation points where a change in bearing is less than a predetermined angle with respect to bearing from an adjacent interpolation point or node and a distance from said interpolation point or node is less than a predetermined distance.

However, *Saito et al.* does teach

(Previously presented): A location information transmission method wherein said interpolation point is omitted from said interpolation points (The examiner takes the position that coordinate data in the invention of *Saito et al.* is registered as either “locus data” or “learning data” if the position deviation and the distance traveled is less than a

Art Unit: 2121

certain predetermined value it is registered as learning data, and if the coordinate is learning data it is omitted from the list of locus data (C 1, L 45- C 2, L 5)) where a change in bearing (C 3, L 49-54; “*error of compass direction of the present position with respect to the nearest line , that is $|\theta_s - \theta_a|$* ”) is less than a predetermined angle (C 3, L 49-54; “*smaller than θ_{th1}* ”) with respect to bearing from an adjacent interpolation point or node (C 1, L 45-49; “*point $P_a (X_a, Y_a)$ on line which is nearest to the present position*”) and a distance from said interpolation point or node (C 3, L 45-49; “*distance la to a point point $P_a (X_a, Y_a)$ on line which is nearest to the present position*”) is less than a predetermined distance (C 3, L 49-54; “*CPU 6 judges as to whether the calculated distance la is equal to or smaller than a predetermined value lth_1* ”).

Both Ito and Saito et al. are in the art of navigation system. Therefore, it would have been obvious to one skilled in the art at the time of invention to combine the invention of Ito with the invention of Saito et al. for the purpose of generating road data (*Saito et al.*; C 1, L 7-9; “the present invention relates to a method of generating road data”) for use in a navigation system which makes use of road data (*Ito*; C 3, L 65-67; “*navigation data includes at least one of map data, road data, intersection data, area guidance data and voice guidance data*”).

Response to Arguments

Applicant's arguments filed on October 26, 2006 have been fully considered but they are not persuasive. The unpersuasive arguments made by the Applicant are stated below:

Art Unit: 2121

In reference to Applicant's argument:

Regarding claim1, Ito does not teach "A location information transmission method for reporting on-road location information on *a first digital map* by an information transmission system, comprising the steps of...receiving said on-road location information *by a receiver having a second digital map*," as required. According to Ito, a navigation base apparatus (transmission side) stores map data and transmits the map data to a receiving side that does not have map data.

Examiner's response:

In Column 3, Lines 29-34 Ito states that "*detailed navigation only for a surrounding areas of a specified point on the recommended route from the navigation data stored in the data base and then transmit[s] the detailed navigation data to the navigation apparatus*". Ito further teaches in Column 3, Lines 65-67 that "*navigation data includes at least one of map data, road data, intersection data, area guidance data and voice guidance data*" and that "*the navigation apparatus further comprises memory means for storing the received navigation data from the navigation base apparatus*" in Column 4, Lines 49-51. Based on these teachings, the examiner takes the position that the map data stored in the data base is a first map, and the map data on the navigation apparatus is a second digital map. This position is further supported by the applicants argument that Ito "*transmits the map data to a receiving side*", but applicant misstates the facts when stating that the "*receiving side does not have map data*". As set ^{forth} ~~for the~~ above, Ito explicitly states the "*the navigation apparatus further comprises memory means for storing the received navigation data from the navigation base apparatus*" in Column 4, Lines 49-51 and further evidence is found in the statement that "*map data is used for displaying a map on the display 106 of the vehicle navigation apparatus 100*" in Column 9, Lines 15-17. Therefore applicant's arguments have been found to be non-persuasive.

12/5/04

Art Unit: 2121

In reference to Applicant's argument:

Further, regarding claim1, Ito does not teach "performing shape matching *to identify said road section on the second digital map* of the receiver based on the string of coordinates line information and the additional information," as required. In Ito map matching is performed for matching vehicle's position with a position on map data received from the navigation base apparatus.

Examiner's response:

The examiner previous established that the invention of Ito contains a second digital map. Ito additionally teaches the use of shape matching (Ito; C 19, L 31-33; "*map matching*") using points on a route (Ito; C 19, L 50-58; "*plotting node point data*") together with related data (Ito; C 19, L 50-58; "*road number data and related data thereto*"), anticipates the shape matching using node numbers (P 0074; "*node number*"), road type codes (P 0074; "*road type code*") and/or road numbers (P 0074; "*road number*") in the applicant's invention. Additionally, the examiner takes the position that teaching of using navigational data (Ito; C 3, L 65-67; "*navigation data includes at least one of map data, road data, intersection data, area guidance data and voice guidance data*") to specifically determine a vehicles position (Ito; C 3, L 14-28; "*current position of the vehicle*") in the invention of Ito anticipates applicants' teaching of using road data (Paragraph 0002; "*on-road location information*") for the broad use of reporting a location (P 0002; "*report a location on a digital map*"). Therefore applicant's arguments have been found to be non-persuasive.

In reference to Applicant's argument:

Further, regarding claim8, Ito does not teach each of the limitation of the claims as required. Specifically, claim 8 requires, in part:

Determining whether the bearing deviation d_n , of an interpolation point, P_n , of said string of coordinates from the preceding interpolation point, P_{n-1} , of said string of coordinates is smaller than a predetermined angle, α

Art Unit: 2121

Determining whether a distance g_n , of the interpolation point, P_n , from the preceding interpolation point, P_{n-1} , is shorter than a predetermined length, β ; and

Omitting the interpolation point, P_n , from the string of coordinates if both $d_n < \alpha$ and $g_n < \beta$ as determined in the determining steps;

Each of these limitation is not taught by the disclosure of Ito.

Examiner's response:

The examiner has reconsidered the applicant's invention of claim 8, and has found that while Ito uses angle to determine course-change points, this is not the same as the applicant's claimed invention. However, the examiner has presented a new rejection based on the prior art under 35 U.S.C. 102 as set forth above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sato (USPN 5,839,087) is cited for his current position calculating system for vehicle having a function for correcting a vehicle direction.

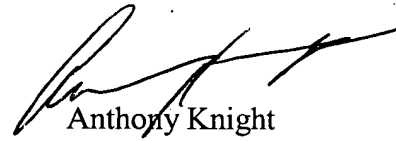
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adrian L. Kennedy whose telephone number is (571) 270-1505. The examiner can normally be reached on Mon -Fri 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2121

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALK



Anthony Knight
Supervisory Patent Examiner
Technology Center 2100